Oct. 21, 1947. M. VARTANIAN 2,429,435

VALVE AND STRAINER UNIT

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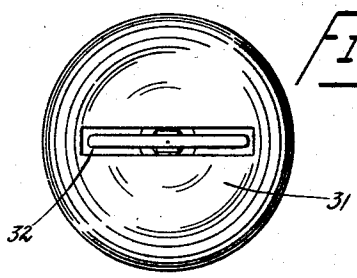


FIG. 2

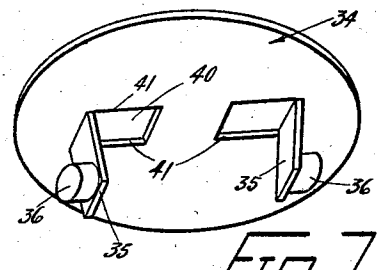


FIG. 7

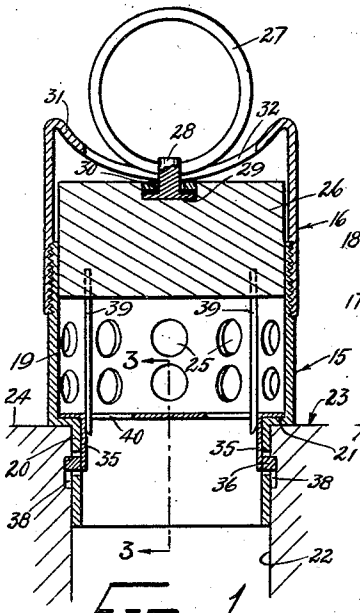


FIG. 1

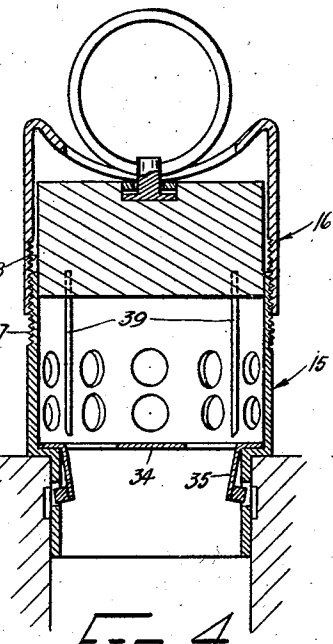


FIG. 4

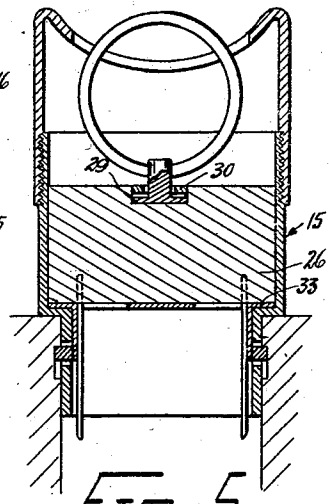
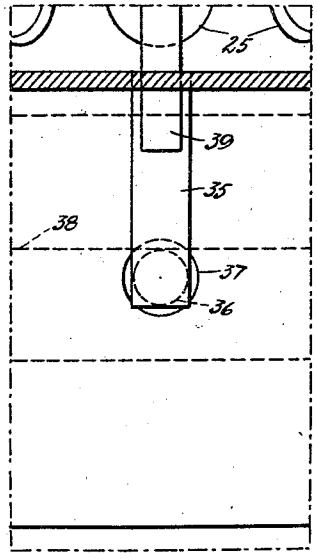


FIG. 5



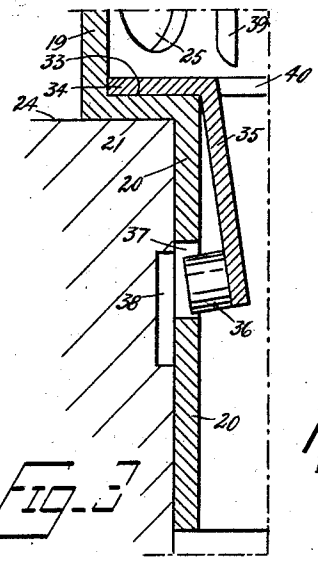


FIG. 3

FIG. 6

INVENTOR.
Martin Vartanian
BY
Attorney

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VALVE AND STRAINER UNIT

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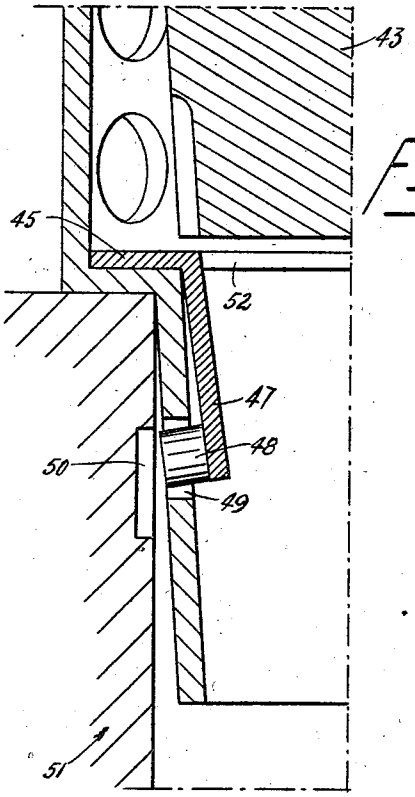


FIG. 9

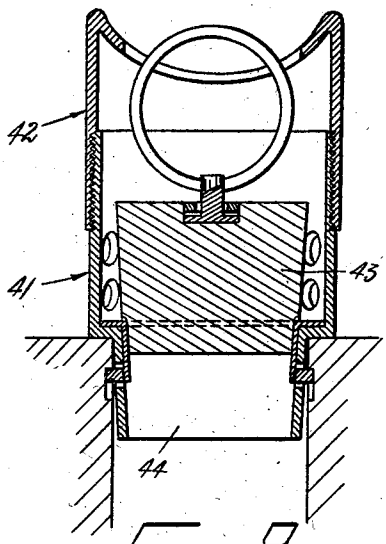


FIG. 8

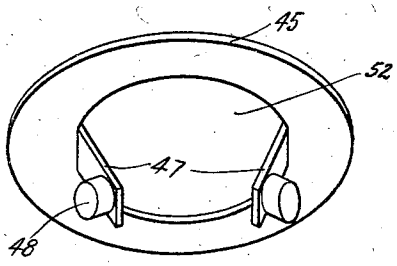


FIG. 10

INVENTOR.
Martin Vartanian
BY
E. P. Quack
Attorney

Patented Oct. 21, 1947

2,429,435

UNITED STATES PATENT OFFICE

2,429,435

VALVE AND STRAINER UNIT

Martin Vartanian, New York, N. Y.

Application March 30, 1945, Serial No. 585,673

4 Claims. (Cl. 4—287)

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This invention relates to drain devices for insertion in outlets of basins, sinks and the like, and more particularly to a combination valve and strainer adapted to be removably associated with a drain outlet.

It is primarily within the contemplation of this invention to provide a valve and strainer construction which will be conveniently adaptable for use in the basins of beauty parlors and barber shops where it is necessary not only to readily control the flow of water into the outlet, but also quickly and easily to remove the entire unit for cleaning and repair purposes.

It is also an important object of my invention to enable the unit to be readily and firmly attached to the outlet fixture, whereby it will remain in place and securely held against dislodgement.

It is a further object of my invention to enable the unit to be readily disconnected from the outlet fixture by a simple manipulation. And in this aspect of my invention it is another object to effect such disconnection without the employment of any special outwardly disposed disconnecting members which might interfere with the operator or cause injury to the operator or customer. In a preferred construction of my invention, this object is accomplished by providing the valve member with means for detachably holding the unit in place.

Another object of this invention is to provide means for enabling the unit to be readily assembled as well as disassembled for cleaning purposes or repair.

And it is within the further contemplation of my invention to enable the above-mentioned objectives to be attained by a simple, readily fabricated and inexpensive device.

Other objects, features and advantages will appear from the drawings and the description hereinafter given.

Referring to the drawings,

Figure 1 is a vertical diametral section showing a preferred embodiment of my invention operatively connected to an outlet fixture, the valve member being shown in its raised, intermediate non-obstructing position while holding the unit locked in place.

Figure 2 is a plan view of Figure 1.

Figure 3 is a fragmentary section of Figure 1 taken substantially along line 3—3.

Figure 4 is a fragmentary sectional view substantially like Figure 1, but showing the valve member in its upper position out of engagement with the locking mechanism.

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Figure 5 is a fragmentary sectional view substantially like Figure 1, but showing the valve member in its lowermost or closed position.

Figure 6 is an enlarged fragmentary section of the arrangement of Figure 4, when the unit is out of its locked position.

Figure 7 is a bottom perspective view of the locking disc member employed in the above-referred to figures.

Figure 8 is a vertical diametral section of a modified form of my invention, the valve member being shown in its lowermost position while holding the unit locked in place.

Figure 9 is an enlarged fragmentary section, like that of Figure 8, but showing the valve member in its raised or open position, and

Figure 10 is a bottom perspective view of the locking disc member employed in the structure of Figures 8 and 9.

In the form of my invention illustrated in Figures 1 to 7, the construction includes two coacting shells 15 and 16 movably connected so that shell 16 serving as a cap could, by manual manipulation, move longitudinally with respect to shell 15, the main casing. Although this connection could, within the contemplation of my invention, be effected in various known ways, such as by a telescopic sliding arrangement or bayonet structure, the preferred method, as illustrated, is a threaded connection. More specifically, the said shells are provided with threaded portions 17 and 18, shell 16 being in overlapping threaded engagement with shell 15.

Shell 15 consists of two portions 19 and 20, the latter or lower portion being of reduced proportions, thereby providing the recessed circumferential shoulder 21. The said lower portion 20 is adapted to be inserted within the outlet opening 22 of the basin or sink floor 23, the shoulder 21 being adapted to rest upon the surface 24 of the basin. The lower part of portion 19 of shell 15 is provided with a plurality of circumferentially disposed outlet apertures 25, the upper part of said portion 19 being adapted to accommodate the valve member 26 when in its upper position, such as is illustrated in Figure 1. The said valve member is adapted to slidably move vertically within portion 19 of shell 15, whereby it can when in its lower position entirely obstruct the apertures 25.

The valve member 26 has rotatably connected thereto the finger ring 27, the illustrated construction being a swivel arrangement comprising an eye member 28 (through which the ring extends) with an expanded base 29 rotatably dis-

posed within the recessed element 30 moulded or otherwise secured within the body of valve 26. The top wall 31 of the cap 16 is preferably of concave form and contains a diametrically disposed slot 32 of a length and width sufficient to allow the ring to enter therein or pass therethrough.

Disposed upon the circumferential inner seat 33 formed by the said shoulder portion 21 is the locking disc 34 preferably of resilient material; and punched out downwardly from the body of the disc are the two yieldably supported legs or locking members 35 containing the outwardly-protruding elements or fingers 36. In their normal unstrained condition, each of these fingers is disposed within an opening 37 (Figure 6) of the lower portion 20 of the shell 15, the position of said openings being substantially at the level of the recess 38 within the wall of the outlet portion 22. Such a recess is generally found in outlet fixtures of this class, to accommodate the conventional strainer disc, which is dispensed with when using my invention.

By referring to Figure 6 it will be observed that the depending member 35 extends, in its said normal state, downwardly and inwardly within the lower portion 20 of shell 15. The length of the element 36 is preferably such that when member 35 is in its normal retracted position, it does not extend beyond the outer surface of wall 20, the terminal of element 36 being within the apertured portion 37. The preferred proportions are such that when the locking member 35 is in a vertical position, or is pressed flush against the inner surface of wall 20, the element 36 will extend beyond wall 20 and into the recess 38 to hold the entire unit against upward displacement and operatively locked in place. It is, however, also within the contemplation of this invention, to employ it within outlet fixtures not provided with a recess like 38, in which event the element 36 will merely engage the adjacent surface of outlet wall 22 and in this manner frictionally hold the unit against displacement.

Extending downwardly from the valve member 26 are two preferably slightly resilient bars or rods 39 so spaced and proportioned that they are adapted to engage the locking legs 35 and force them outwardly into locking positions, as shown in Figures 1 and 5. The length of these bars is such that they are operatively engageable with the legs 35 not only when the valve 26 is in its lowermost closed position, at which position the outlet apertures are entirely obstructed, but also when it is in the intermediate upper open position illustrated in Figure 1. It will be observed that in either of these positions, the bars 39 extend through the apertures 40, and being flanked by the lateral walls 41 of said apertures, the bars are prevented from moving laterally, and the entire valve member 26 accordingly prevented from rotating.

It thus appears that the locking disc 34 not only provides the locking members 35 and an anchorage therefor, but also serves as a guide for the bars 39 and as a means to prevent a rotation of the valve 26. It is also apparent that the entire locking disc 34 can readily be assembled in place by merely placing it upon the circumferential seat 33 (when the cap 16 is removed from shell 15) and rotating it until the fingers 36 snap into the holes 37.

Should it be desired to disengage the entire unit from the basin, the cap 16 is partially unscrewed, thereby raising the level of top wall 31, and accordingly permitting the valve 26 to be raised to its disengaging position, as illustrated in Figure 4. This is accomplished by simply grasping ring 27, and applying an upward pull, whereby the bars 39 are brought to a level above the disc 34 and out of engagement with the locking members 35. Said locking members, because of the resilient construction, will then return to their normal positions, as indicated in Figures 4 and 6, whereupon the entire unit can be withdrawn.

It is thus apparent that the valve member 26 can occupy three critical positions—the lowermost closed position where it obstructs the holes 25 and maintains the members 35 in their locking positions (Figure 5), the intermediate open position where the holes 25 are unobstructed but the members 35 are still in their locking positions (Figure 1), and the uppermost open position where the members 35 are disengaged from the outlet fixtures and the entire unit is in a condition to be removed (Figure 4).

The valve 26 is firmly maintained in its intermediate position by turning the ring 27 so that it rests upon the upper wall 31, whereby the valve cannot be displaced downwardly. Similarly, it can be held against downward movement from the uppermost position illustrated in Figure 4. If the valve is to be depressed to its lower closed position, shown in Figure 5, the ring 27 is turned so that it can enter the slot 32. Due to the fact that the upper wall 31 of the cap 16 is concave, enough of the ring 27 will protrude for convenient grasping, even when the valve is in its lowermost position.

In unscrewing the cap 16 while the valve member 26 is stationary, the ring 27 will enter the slot 32, and in view of the rotatable mounting for the ring it will, upon being engaged by the lateral walls of the slot, revolve with the operative rotation of the cap 16. Should it be desired to disassemble the device, all that need be done is to continue the unscrewing of the cap 16 until it is entirely disengaged from the shell casing 15. The cap can then be lifted up over the ring 27, and the valve member and locking disc then removed, if desired.

A modified form of my invention is shown in Figures 8, 9 and 10. The coacting shells 41 and 42 are substantially like those of the preferred form above described. The valve 43 is of the plug type, and is adapted to close the outlet portion 44 of shell 41, in conventional manner. The resilient disc 45 has two depending legs or members 47 with outwardly extending elements 48 adapted to enter the holes 49 in the shell and the recess 50 in the outlet fixture 51, as in the first-described form of my invention. The plug valve 43, however, is adapted to enter the central aperture 52 in its closing position, engaging the yieldable members 47 and operatively forcing them into their locking position. The plug is provided with the recessed portions 53 for operatively accommodating the locking members 47 when the plug is in its closed position. Thus, in this form of my invention, the bars 39 of the first-described embodiment are eliminated, the valve member proper actuating the locking mechanism.

It is understood that the various embodiments above-described and shown in the drawings are illustrative of my invention and not employed by way of limitation; inasmuch as numerous changes and modifications may be made within the scope of the appended claims without departing from the spirit of this invention.

What I claim is:

1. In a valve and strainer unit adapted for association with an outlet fitting of the class described, a casing with a lower outlet portion, a valve operatively movable within said casing between a lower closing position obstructing said outlet portion and at least one predetermined upper open and unobstructing position, said valve having a downwardly extending bar of predetermined length, an apertured portion in said lower outlet portion, yieldable locking means within said outlet portion and extending substantially to the level of said apertured portion, said locking means being normally in the path of said bar and adapted to be engaged thereby during its downward operative movement, whereby said locking means will be yieldably urged by the bar through said apertured portion, the proportions of the locking means in the region of said aperture being such that when operatively forced by the bar through the aperture it will extend therebeyond a predetermined amount.

2. In a valve and strainer unit adapted for association with an outlet fitting of the class described, a casing with a lower outlet portion, a valve operatively movable within said casing between a lower closing position obstructing said outlet portion and at least one predetermined upper open and unobstructing position, said valve having a downwardly extending bar of predetermined length, an apertured portion in said lower outlet portion, a disc disposed within said casing and above said apertured portion, said disc having a downwardly extending yieldable leg with an outwardly extending locking element substantially at the level of said apertured portion, the leg having been forced out of the body of the disc to form a slot therein, the said bar being adapted to extend through the slot whereby it will be guided during its operative movement by the lateral walls of the slot, the leg being normally in the path of said bar and adapted to be engaged thereby during its downward operative movement, whereby said leg will be yieldably urged outwardly and the locking element caused to move through the apertured portion, the proportions of the locking element being such that when operatively forced by the bar through the aperture it will extend therebeyond a predetermined amount.

3. In a valve and strainer unit adapted for association with an outlet fitting of the class described, a casing with a lower outlet portion, a valve operatively movable within said casing between a lower closing position obstructing said outlet portion and at least one predetermined upper open and unobstructing position, said valve having a downwardly extending bar of predetermined length, said casing being provided with a closure cap containing a slotted top wall extending transversely across the top of the casing, an apertured portion in said lower outlet portion, yieldable locking means within said outlet portion and extending substantially to the level of said apertured portion, said locking means being normally in the path of said bar and adapted to be engaged thereby during its downward operative movement, whereby said locking means will be yieldably urged by the bar through said apertured portion, the proportions of the locking means in the region of said apertured portion being such that when operatively forced by the bar through the aperture it will extend therebeyond a predetermined amount, said valve being provided with manually manipulable ring means rotatably attached to the valve and proportioned for movement through and over the said slotted top wall of the cap, whereby such means may be supported by said top wall for holding the valve against downward movement when in a raised position.

4. In a valve and strainer unit adapted for association with an outlet fitting of the class described, the combination according to claim 3, the top wall of the cap being of substantially concave configuration, whereby the ring means may protrude upwardly therefrom through the slot thereof when the valve is in its lowermost position.

MARTIN VARTANIAN.

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